

## PATENT ABSTRACTS OF JAPAN

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(21)Application number : 2000-351347 (71)Applicant : TAIRA YOSUKE

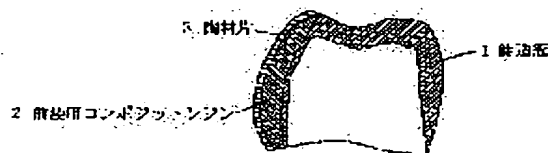
(22)Date of filing : 17.11.2000 (72)Inventor : TAIRA YOSUKE

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**(54) METHOD OF MAKING RESIN VENEER CROWN COATED WITH PORCELAIN****(57)Abstract:**

**PROBLEM TO BE SOLVED:** To provide a method of making a veneer crown which has a hardly staining surface, has excellent wear resistance and can be easily fabricated.

**SOLUTION:** A composite resin 2 for veneering, such as an opaque resin or body resin, is built on a cast crown 1 formed of a dental alloy and a translucent porcelain piece 3 of about 0.5 mm in thickness is joined at ordinary temperature to the surface of the composite resin for veneering by utilizing the adhesiveness of the resin.



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CLAIMS

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[Claim(s)]

[Claim 1]A manufacturing method of a casted metal crown with facing joining a fabricated piece of the porcelain to a cast crown which consists of dental alloys to the surface which \*\*\*\*(ed) composite resin for precoats.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the manufacturing method of the casted metal crown with facing used for an odontotherapy.

[0002]

[Description of the Prior Art]Since a wrap and appearance worsen a gear tooth with metal, it is the casted metal crown with facing which ornamented the transverse plane of metal crowns with resin or the porcelain, and was modeled on the natural tooth. The manufacturing method of the conventional casted metal crown with facing \*\*\*\* the porcelain to the resin casted metal crown with facing which \*\*\*\* the composite resin 2 for precoats to the cast crown 1, and polymerizes at ordinary temperature, and the cast crown 1, and is divided roughly into two kinds of porcelain baking cast crowns calcinated at an elevated temperature.

[0003]

[Problem(s) to be Solved by the Invention]Compared with a porcelain baking cast crown or a natural tooth, the precoat surface is easily worn out by digestion or toothbrushing, the gloss of a resin casted metal crown with facing is lost easily, and there is a fault that dirt is attached easily. On the other hand, there is a fault that it cannot be manufactured unless it heats a porcelain baking cast crown compared with a resin casted metal crown with facing although the appearance near a natural tooth is maintained comparatively for a long period of time, and that there are few kinds of dental alloy which can be used which manufacture takes skill.

[0004]

[Means for Solving the Problem]It is made so that this invention may make use of a special feature of both a resin casted metal crown with facing and a porcelain baking cast crown, and if it is explained about a drawing, it will \*\*\*\* the composite resin 2 for precoats to the cast crown 1 in accordance with a manufacturing method of a resin casted metal crown with facing first. then, the translucent and thin piece 3 of the porcelain is fabricated -- it joins to the composite resin 2 for precoats which \*\*\*\*(ed) previously this piece 3 of the porcelain of one sheet using the adhesive property of resin.

[0005]

[Embodiment of the Invention]An example is given. The cast crown 1 is produced using dental gold-silver-palladium alloys, in the stage which \*\*\*\*(ed) the composite resin 2 for precoats, the lamination veneer production programs of the computer-aided design and manufacture device for dentistry are used, and the piece 3 of the porcelain about thickness 0.5 mm is automatically cut from the block of the porcelain.

[0006]A binder is used for junction of the cast crown 1 and the composite resin 2 for precoats, and junction of the piece 3 of the porcelain, and the composite resin 2 for precoats.

[0007]In order to control the breakage of the piece 3 of the porcelain which carried out the precoat, it is good to paste up strongly the composite resin 2 for precoats, and the piece 3 of the porcelain.

[0008]A complicated color tone with a transparent feeling like a natural tooth is reproduced by forming the piece 3 of the porcelain thinly and using several kinds of colors of the composite

resin 2 for precoat, such as opaque resin and body resin, further.

[0009]The gloss similar to a natural tooth is obtained, and it becomes difficult to become dirty by grinding the surface of the joined piece 3 of the porcelain.

[0010]Since there was no method of pasting up the porcelain, resin, and metal and resin powerfully conventionally, it was difficult to join the porcelain to a cast crown at ordinary temperature. However, the thing for which the adhesive monomer which can combine with the porcelain or a dental alloy, can polymerize and moreover has usable safety within the mouth was compounded, Durable adhesion came to be obtained in connection with that the primer containing this adhesive monomer and the binder were developed, and the covering side approach of an alloy and each porcelain having been developed further, and this invention became possible.

[0011]If tens of thousands of thermal excursion durability tests are presented with the specimen on which polymerized type resin, the ground porcelain, or the polished alloy was pasted up experimentally the instancy for dentistry which does not contain an adhesive monomer, When polymerized type resin is pasted up on the adherend which performed sandblast treatment and priming the instancy containing an adhesive monomer for dentistry to exfoliating in a plane of composition, It is confirmed that the significant difference with it is not accepted.

[ comparatively high and bonding strength and ] [ statistical to the bonding strength for which it asked before and after the durability test concerned ]

[0012]

[Effect of the Invention]Since this invention uses the adhesive property of resin for junction of the porcelain and a dental alloy, it can do the precoat by the porcelain, without heating.

Therefore, heating apparatus is unnecessary, the time which manufacture takes compared with a porcelain baking cast crown is short, and it is possible not to require skill and to use all kinds of dental alloy. The surface by which the precoat was carried out compared with the resin casted metal crown with facing is not easily worn out like the case of a porcelain baking cast crown, and gloss is lost, and it is [ the casted metal crown with facing manufactured according to this invention ] hard, and it does not become dirty easily. Therefore, the appearance similar to a natural tooth lasts long, so the treated patient appreciates.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is the figure which looked at the casted metal crown with facing of this invention from the transverse plane.

[Drawing 2]It is a sectional view of a line of drawing 1.

[Drawing 3]It is the figure which looked at the casted metal crown with facing of this invention from the upper surface.

[Description of Notations]

1 Cast crown

2 Composite resin for precoat

3 The piece of the porcelain

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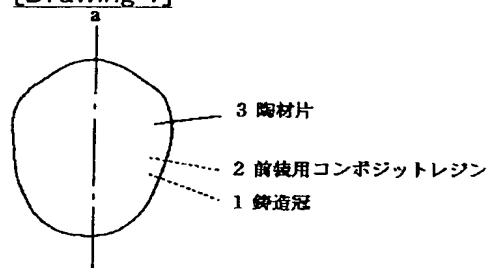
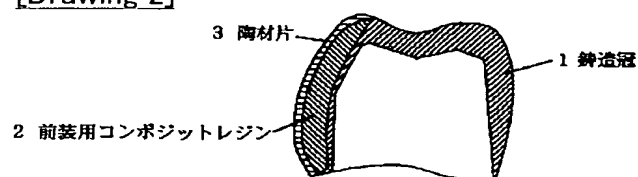
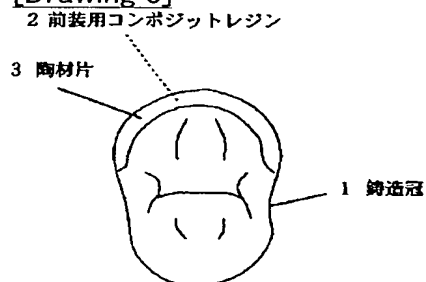
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DRAWINGS

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[Drawing 1][Drawing 2][Drawing 3]

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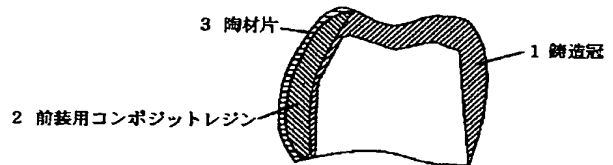
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TT03

(54) 【発明の名称】 陶材で被覆したレジン前装冠の製造方法

(57) 【要約】

【課題】 表面が汚れにくく、耐摩耗性に優れ、かつ、容易に作製できる前装冠の製造方法を提供すること。

【解決手段】 歯科用合金により形成した铸造冠 1 に対してオベークレジンやボディーレジン等の前装用コンボジットレジン 2 を築成し、かつ、レジンの接着性を利用して、前装用コンボジットレジンの表面に厚さ 0.5 mm 程度の半透明な陶材片 3 を常温で接合する。



## 【特許請求の範囲】

【請求項1】 歯科用合金からなる鑄造冠に前装用コンポジットレジンで築成した表面に対して、成形した陶材片を接合したことを特徴とする前装冠の製作方法。

## 【発明の詳細な説明】

【0001】

【発明の属する技術分野】この発明は歯科治療に用いる前装冠の製造方法に関するものである。

【0002】

【従来の技術】歯を金属で覆うと外見が悪くなるので、金属製の冠の正面をレジンや陶材で装飾して天然歯に似せたものが前装冠である。従来の前装冠の製造方法は、鑄造冠1に対して前装用コンポジットレジン2を築成して常温で重合するレジン前装冠と、鑄造冠1に対して陶材を築成し、高温で焼成する陶材焼付け鑄造冠の2種類に大別される。

【0003】

【発明が解決しようとする課題】レジン前装冠は陶材焼付け鑄造冠や天然歯に比べて、前装表面が咀嚼や歯磨きによって磨耗し易く、つやがなくなり易く、汚れが付き易いといった欠点がある。一方、陶材焼付け鑄造冠は天然歯に近い外観が比較的長期間保たれるが、レジン前装冠に比べて、加熱しないと製造できない、製造に熟練を要する、使用できる歯科用合金の種類が少ないといった欠点がある。

【0004】

【課題を解決するための手段】本発明は、レジン前装冠と陶材焼付け鑄造冠の両方の特質をいかすべくされたものであり、それを図面について説明すれば、まずレジン前装冠の製造法にしたがって鑄造冠1に対して前装用コンポジットレジン2を築成する。その後、半透明で薄い陶材片3を成形し、レジンの接着性を利用して、この1枚の陶材片3を先に築成した前装用コンポジットレジン2と接合するものである。

【0005】

【発明の実施の形態】実施例をあげる。歯科用金銀パラジウム合金を用いて鑄造冠1を作製し、前装用コンポジットレジン2を築成した段階で、歯科用コンピュータ支援設計・製作装置のラミネートベニア作製プログラムを使用して、陶材のブロックから厚さ0.5 mm程度の陶材片3を自動的に切削加工する。

【0006】鑄造冠1と前装用コンポジットレジン2の接合、そして陶材片3と前装用コンポジットレジン2の接合には接着材を利用する。

【0007】前装した陶材片3の破折を抑制するには、前装用コンポジットレジン2と陶材片3を強く接着する

とよい。

【0008】陶材片3を薄く形成し、さらに、オベークレジンやボディーレジンなどの前装用コンポジットレジン2の色を数種類使用することによって、天然歯のような透明感のある複雑な色調が再現される。

【0009】接合した陶材片3の表面を研磨することによって天然歯に似たつやが得られ、かつ、汚れにくくなる。

【0010】従来は、陶材とレジン、そして金属とレジンを強力に接着する方法がなかったため、鑄造冠と陶材を常温で接合するのは困難であった。しかし、陶材や歯科用合金に結合でき、重合が可能で、しかも、口腔内で使用可能な安全性のある接着性モノマーが合成されたこと、この接着性モノマーを含有するプライマーや接着材が開発されたこと、さらに、合金と陶材それぞれの被着面処理法が開発されたことに伴って、耐久性のある接着が得られるようになり、本発明が可能となった。

【0011】実験的には、接着性モノマーを含まない歯科用即時重合型レジンと研磨した陶材、あるいは研磨した合金を接着した試験片を、数万回の熱サイクル耐久試験に供すると、接合面で剥離するのに対し、接着性モノマーを含有する歯科用即時重合型レジンを、サンドブラスト処理やプライマー処理を施した被着体に接着した場合は、接着強さが比較的高く、かつ、当該耐久試験の前で求めた接着強さに統計的な有意差は認められないことが確かめられている。

【0012】

【発明の効果】本発明は、陶材と歯科用合金の接合にレジンの接着性を利用しているため、加熱せずに陶材による前装ができる。したがって、加熱装置が不要で、陶材焼付け鑄造冠に比べ製造に要する時間は短く、熟練を要せず、かつ、あらゆる種類の歯科用合金を用いることが可能である。さらに、本発明に従って製造された前装冠は、陶材焼付け鑄造冠の場合と同様に、レジン前装冠に比べて前装された表面が磨耗しにくく、つやが失われにくく、かつ、汚れにくい。したがって、天然歯に似た外観が長もちし、治療を受けた患者によるこぼれる。

## 【図面の簡単な説明】

【図1】本発明の前装冠を正面から見た図である。

【図2】図1のa線の断面図である。

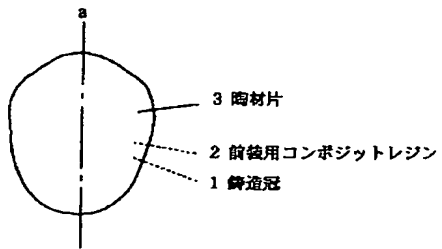
【図3】本発明の前装冠を上面から見た図である。

## 【符号の説明】

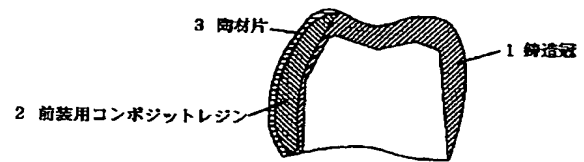
- 1 鑄造冠
- 2 前装用コンポジットレジン
- 3 陶材片



【図1】



【図2】



【図3】

